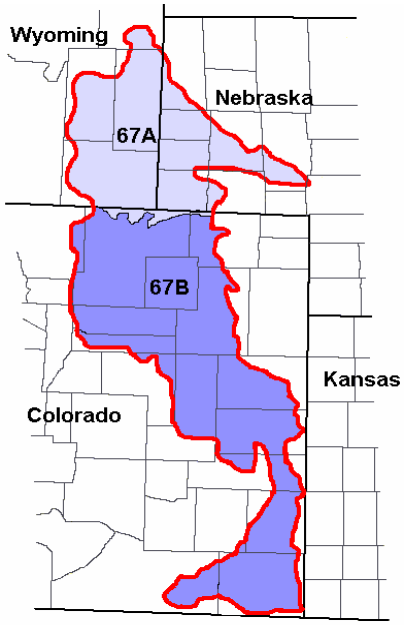
United States Department of Agriculture
Natural Resources Conservation Service

Ecological Site Description



Site Type: Rangeland

Site Name: Limy Upland 12-17" Precipitation Zone

Site ID: R067AY120WY

Major Land Resource Area: 67 – North Central High Plains

Physiographic Features

This site occurs on very gently sloping to moderately steep uplands.

Landform: hillsides, ridges

Aspect: N/A

	Minimum	Maximum
Elevation (feet):	4000	6500
Slope (percent):	3	20
Water Table Depth (inches):	none	none
Flooding:		
Frequency:	none	none
Duration:	none	none
Ponding:		
Depth (inches):	0	0
Frequency:	none	none
Duration:	none	none
Runoff Class:	negligible	high

Climatic Features

Annual precipitation ranges from 12-17 inches per year. Wide fluctuations may occur in yearly precipitation and result in more dry years than those with more than normal precipitation. Temperatures show a wide range between summer and winter and between daily maximums and minimums, due to the high elevation and dry air, which permits rapid incoming and outgoing radiation. Cold air outbreaks from Canada in winter move rapidly from northwest to southeast and account for extreme minimum temperatures. Chinook winds may occur in winter and bring rapid rises in temperature. Extreme storms may occur during the winter, but most severely affect ranch operations during late winter and spring.

Wind speed averages about 8 mph, ranging from 10 mph during the spring to 7 mph during late summer. Daytime winds are generally stronger than nighttime and occasional strong storms may bring brief periods of high winds with gusts to more than 75 mph.

Growth of native cool-season plants begins about April 1 and continues to about July 1. Native warm-season plants begin growth about May 15 and continue to about August 15. Green up of cool season plants may occur in September and October of most years.

The following information is from the "Lusk 2SW" climate station.

	Minimum	Maximum
Frost-free period (days):	74	148
Freeze-free period (days):	101	181
Mean Annual Precipitation (inches):	12	17

Mean annual precipitation: 15.71 inches
Mean annual air temperature: 45.2 °F (31.0°F Avg. Min. – 59.3°F Avg. Max.)
For detailed information visit the Natural Resources Conservation Service National Water and Climate Center at http://www.wcc.nrcs.usda.gov/ website. Other climate station(s) representative of this precipitation zone include: "Chugwater, Wheatland 4N and Cheyenne AP", and Scottsbluff WSO AP.

Influencing Water Features

Wetland Description:	System	Subsystem	Class	Sub-class
None	None	None	None	None

Stream Type: None (Rosgen System)

Representative Soil Features

The soils of this site are deep and well drained to somewhat excessively drained. These soils are moderately permeable and formed in calcareous loess.

Major Soil Series correlated to this site include: Colby, Keota, Mitchell, Buffinton, Sulco.

Other Soil Series correlated to this site include: none

Parent Material Kind: loess
Parent Material Origin: sandstone, shale, siltstone
Surface Texture: loam, silt loam, very fine sandy loam
Surface Texture Modifier: none
Subsurface Texture Group: loamy
Surface Fragments ≤ 3" (% Cover): 0
Surface Fragments > 3" (%Cover): 0
Subsurface Fragments ≤ 3" (% Volume): 0
Subsurface Fragments > 3" (% Volume): 0

	Minimum	Maximum
Drainage Class:	well	somewhat excessively
Permeability Class:	moderately	rapid
Depth (inches):	>40	>60
Electrical Conductivity (mmhos/cm) ≤20":	0	4
Sodium Absorption Ratio ≤20":	0	5
Soil Reaction (1:1 Water) ≤20":	6.6	8.4
Soil Reaction (0.1M CaCl2) ≤20":	N/A	N/A
Available Water Capacity (inches) ≤30":	3.0	6.3
Calcium Carbonate Equivalent (percent) ≤20":	0	10

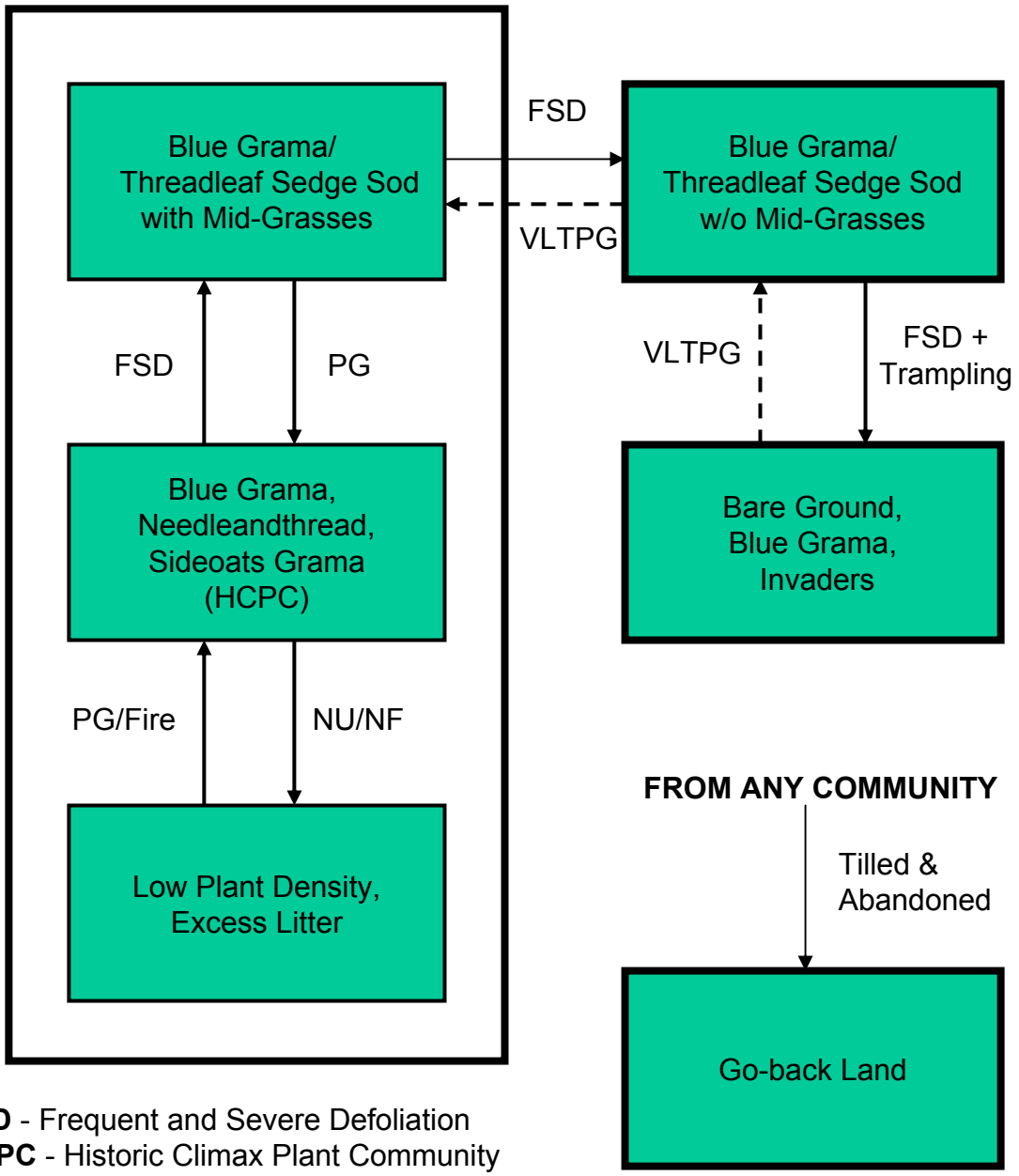
Plant Communities

Ecological Dynamics of the Site

As this site deteriorates from frequent and severe grazing, grasses such as sideoats grama, little bluestem, and needleandthread will decrease in frequency and production. Blue grama and threadleaf sedge will increase. Under continued frequent and severe defoliation, the plant community will eventually become sod-bound. Over the long-term, in combination with trampling, this sod will ultimately become broken with areas of bare ground developing and species such as annual bromes and broom snakeweed invading.

The historic climax plant community (description follows the State and Transition Model Diagram) has been determined by study of rangeland relic areas, or areas protected from excessive disturbance. Trends in plant communities going from heavily grazed areas to lightly grazed areas, seasonal use pastures, and historical accounts have also been used.

The following is a State and Transition Model Diagram that illustrates the common plant communities that can occur on the site and the transitions between these communities. The ecological processes will be discussed in more detail in the plant community narratives following the diagram.



FSD - Frequent and Severe Defoliation
HCPC - Historic Climax Plant Community
LTPG - Long-term Prescribed Grazing
NU/NF- No Use and No Fire
PG - Prescribed Grazing
VLTPG - Very Long-term Prescribed Grazing

Plant Community Composition and Group Annual Production

Blue Grama, Needleandthread, Sideoats Grama Plant Community (HCPC)

COMMON NAME/GROUP NAME	SCIENTIFIC NAME	SYMBOL	Annual Production (Normal Year) Total: 1000		
			Group	lbs./acre	% Comp.
GRASSES AND GRASS-LIKES					
COOL-SEASON MID-GRASSES			**1**	**150 - 300**	**15 - 30**
needleandthread	Hesperostipa comata	HECO26	1	100 - 200	10 - 20
western wheatgrass	Pascopyrum smithii	PASM	1	50 - 100	5 - 10
WARM-SEASON MID-GRASSES			**2**	**150 - 300**	**15 - 30**
sideoats grama	Bouteloua curtipendula	BOCU	2	100 - 150	10 - 15
little bluestem	Schizachyrium scoparium	SCSC	2	50 - 150	5 - 15
WARM-SEASON SHORT GRASSES			**3**	**200 - 250**	**20 - 25**
blue grama	Bouteloua gracilis	BOGR2	3	200 - 250	20 - 25
SEDGES			**4**	**100 - 150**	**10 - 15**
threadleaf sedge	Carex filifolia	CAFI	4	100 - 150	10 - 15
other sedges	Carex spp.	CAREX	4	0 - 50	0 - 5
MISCELLANEOUS GRASSES			**5**	**50 - 150**	**5 - 15**
green needlegrass	Nassella viridula	NAVI4	5	0 - 50	0 - 5
buffalograss	Buchloe dactyloides	BUDA	5	0 - 50	0 - 5
prairie sandreed	Calamovilfa longifolia	CALO	5	0 - 50	0 - 5
sand dropseed	Sporobolus cryptandrus	SPCR	5	0 - 50	0 - 5
prairie junegrass	Koeleria macrantha	KOMA	5	0 - 50	0 - 5
Sandberg bluegrass	Poa secunda	POSE	5	0 - 50	0 - 5
plains muhly	Muhlenbergia cuspidata	MUCU3	5	0 - 50	0 - 5
threeawns	Aristida spp.	ARIST	5	0 - 20	0 - 2
other perennial grasses (native)		2GP	5	0 - 50	0 - 5
FORBS			**6**	**50 - 150**	**5 - 15**
American vetch	Vicia americana	VIAM	6	0 - 20	0 - 2
breadroots	Pediomelum spp.	PEDIO2	6	0 - 20	0 - 2
cudweed sagewort	Artemisia ludoviciana	ARLU	6	0 - 20	0 - 2
dotted gayfeather	Liatris punctata	LIPU	6	0 - 20	0 - 2
fringed sagewort	Artemisia frigida	ARFR4	6	0 - 20	0 - 2
ironweed	Vernonia spp.	VERNO	6	0 - 20	0 - 2
milkvetches	Astragalus spp.	ASTRA	6	0 - 20	0 - 2
penstemons	Penstemon spp.	PENST	6	0 - 20	0 - 2
prairie coneflower	Ratibida columnifera	RACO3	6	0 - 20	0 - 2
purple prairie clover	Dalea purpurea	DAPU5	6	0 - 20	0 - 2
rush skeletonplant	Lygodesmia juncea	LYJU	6	0 - 20	0 - 2
scarlet gaura	Gaura coccinea	GACO5	6	0 - 20	0 - 2
scarlet globemallow	Sphaeralcea coccinea	SPCO	6	0 - 20	0 - 2
scurfpeas	Psoralidium spp.	PSORA2	6	0 - 20	0 - 2
western ragweed	Ambrosia psilostachya	AMPS	6	0 - 20	0 - 2
white prairie clover	Dalea candida	DACA7	6	0 - 20	0 - 2
other perennial forbs (native)		2FP	6	0 - 50	0 - 5
SHRUBS			**7**	**0 - 100**	**0 - 10**
winterfat	Krascheninnikovia lanata	KRLA2	7	0 - 50	0 - 5
yucca	Yucca glauca	YUGL	7	0 - 50	0 - 5
Arkansas rose	Rosa arkansana	ROAR3	7	0 - 20	0 - 2
broom snakeweed	Gutierrezia sarothrae	GUSA2	7	0 - 20	0 - 2
plains pricklypear	Opuntia polyacantha	OPPO	7	0 - 20	0 - 2
rubber rabbitbrush	Ericameria nauseosa	ERNA10	7	0 - 20	0 - 2
other shrubs and half-shrubs (native)		2SHRUB	7	0 - 50	0 - 5

This list of plants and their relative proportions are based on near normal years. Fluctuations in species composition and relative production may change from year to year dependent upon precipitation or other climatic factors.

Plant Community Composition and Group Annual Production

Blue Grama, Needleandthread, Sideoats Grama Plant Community (HCPC)

COMMON NAME/GROUP NAME	SCIENTIFIC NAME	SYMBOL	Annual Production (Normal Year) Total: 1250		
			Group	lbs./acre	% Comp.
GRASSES AND GRASS-LIKES					
COOL-SEASON MID-GRASSES			**1**	**188 - 375**	**15 - 30**
needleandthread	Hesperostipa comata	HECO26	1	125 - 250	10 - 20
western wheatgrass	Pascopyrum smithii	PASM	1	63 - 125	5 - 10
WARM-SEASON MID-GRASSES			**2**	**188 - 375**	**15 - 30**
sideoats grama	Bouteloua curtipendula	BOCU	2	125 - 188	10 - 15
little bluestem	Schizachyrium scoparium	SCSC	2	63 - 188	5 - 15
WARM-SEASON SHORT GRASSES			**3**	**250 - 313**	**20 - 25**
blue grama	Bouteloua gracilis	BOGR2	3	250 - 313	20 - 25
SEDGES			**4**	**125 - 188**	**10 - 15**
threadleaf sedge	Carex filifolia	CAFI	4	125 - 188	10 - 15
other sedges	Carex spp.	CAREX	4	0 - 63	0 - 5
MISCELLANEOUS GRASSES			**5**	**63 - 188**	**5 - 15**
green needlegrass	Nassella viridula	NAVI4	5	0 - 63	0 - 5
buffalograss	Buchloe dactyloides	BUDA	5	0 - 63	0 - 5
prairie sandreed	Calamovilfa longifolia	CALO	5	0 - 63	0 - 5
sand dropseed	Sporobolus cryptandrus	SPCR	5	0 - 63	0 - 5
prairie junegrass	Koeleria macrantha	KOMA	5	0 - 63	0 - 5
Sandberg bluegrass	Poa secunda	POSE	5	0 - 63	0 - 5
plains muhly	Muhlenbergia cuspidata	MUCU3	5	0 - 63	0 - 5
threeawns	Aristida spp.	ARIST	5	0 - 25	0 - 2
other perennial grasses (native)		2GP	5	0 - 63	0 - 5
FORBS			**6**	**63 - 188**	**5 - 15**
American vetch	Vicia americana	VIAM	6	0 - 25	0 - 2
breadroots	Pediomelum spp.	PEDIO2	6	0 - 25	0 - 2
cudweed sagewort	Artemisia ludoviciana	ARLU	6	0 - 25	0 - 2
dotted gayfeather	Liatris punctata	LIPU	6	0 - 25	0 - 2
fringed sagewort	Artemisia frigida	ARFR4	6	0 - 25	0 - 2
ironweed	Vernonia spp.	VERNO	6	0 - 25	0 - 2
milkvetches	Astragalus spp.	ASTRA	6	0 - 25	0 - 2
penstemons	Penstemon spp.	PENST	6	0 - 25	0 - 2
prairie coneflower	Ratibida columnifera	RACO3	6	0 - 25	0 - 2
purple prairie clover	Dalea purpurea	DAPU5	6	0 - 25	0 - 2
rush skeletonplant	Lygodesmia juncea	LYJU	6	0 - 25	0 - 2
scarlet gaura	Gaura coccinea	GACO5	6	0 - 25	0 - 2
scarlet globemallow	Sphaeralcea coccinea	SPCO	6	0 - 25	0 - 2
scurfpeas	Psoralidium spp.	PSORA2	6	0 - 25	0 - 2
western ragweed	Ambrosia psilostachya	AMPS	6	0 - 25	0 - 2
white prairie clover	Dalea candida	DACA7	6	0 - 25	0 - 2
other perennial forbs (native)		2FP	6	0 - 63	0 - 5
SHRUBS			**7**	**0 - 125**	**0 - 10**
winterfat	Krascheninnikovia lanata	KRLA2	7	0 - 63	0 - 5
yucca	Yucca glauca	YUGL	7	0 - 63	0 - 5
Arkansas rose	Rosa arkansana	ROAR3	7	0 - 25	0 - 2
broom snakeweed	Gutierrezia sarothrae	GUSA2	7	0 - 25	0 - 2
plains pricklypear	Opuntia polyacantha	OPPO	7	0 - 25	0 - 2
rubber rabbitbrush	Ericameria nauseosa	ERNA10	7	0 - 25	0 - 2
other shrubs and half-shrubs (native)		2SHRUB	7	0 - 63	0 - 5

This list of plants and their relative proportions are based on near normal years. Fluctuations in species composition and relative production may change from year to year dependent upon precipitation or other climatic factors.

Plant Community Narratives

Following are the narratives for each of the described plant communities. These plant communities may not represent every possibility, but they probably are the most prevalent and repeatable plant communities. The plant composition table shown above has been developed from the best available knowledge at the time of this revision. As more data is collected, some of these plant communities may be revised or removed, and new ones may be added. None of these plant communities should necessarily be thought of as "Desired Plant Communities". According to the USDA – NRCS National Range and Pasture Handbook, Desired Plant Communities will be determined by the decision-makers and will meet minimum quality criteria established by the NRCS. The main purpose for including any description of a plant community here is to capture the current knowledge and experience at the time of this revision.

Blue Grama, Needleandthread, Sideoats Grama Plant Community

This is the interpretive plant community and is considered to be the Historic Climax Plant Community (HCPC). This plant community evolved with grazing by large herbivores and is well suited for grazing by domestic livestock and can be found on areas that are grazed and where the grazed plants receive adequate periods of rest during the growing season in order to recover. Historically, fires likely occurred infrequently. The potential vegetation is about 75-95% grasses, 5-15% forbs, and 0-10% woody plants. The community is dominated by warm and cool season mid-grasses. The major grasses include blue grama, needleandthread, and sideoats grama. Other grasses and grass-likes include western wheatgrass, little bluestem, threadleaf sedge, and prairie junegrass. A variety of forbs and half-shrubs also occur, as shown in the preceding table. Shrubs are not abundant. Plant diversity is high.

The total annual production (lb./ac., air-dry weight) of this plant community during an average year is:

12-14" P.Z.

	LOW	AVG	HIGH
GRASS/GRASSLIKE	510	850	1020
FORB	60	100	120
SHRUB	30	50	60
TREE	0	0	0
TOTAL	600	1000	1200

15-17"P.Z.

	LOW	AVG	HIGH
GRASS/GRASSLIKE	635	1060	1485
FORB	75	125	175
SHRUB	40	65	90
TREE	0	0	0
TOTAL	750	1250	1750

The following is the growth curve of this plant community expected during an average year:
Growth Curve Number:
Growth Curve Name:
Growth Curve Description:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	0	10	20	35	20	10	5	0	0	0

(monthly percentages of total annual growth)

This plant community is extremely stable and well adapted to the Northern Great Plains climatic conditions. The diversity in plant species allows for high dry tolerance. This is a sustainable plant community in terms of soil stability, watershed function, and biologic integrity.

Transitions or pathways leading to other plant communities are as follows:

- Frequent and severe defoliation, during the growing season of the cool-season mid-grasses, will move this plant community initially towards the *Blue Grama/Threadleaf Sedge Sod w/ Mid-grasses Plant Community.* Over a period of years, plant species less tolerant to frequent or severe defoliation will begin to decrease, and those more tolerant will begin to increase.

- No use and no fire will move this plant community towards the *Low Plant Density, Excess Litter Plant Community*. Initially, excess litter begins to build-up. Eventually native plant density begins to decrease and weeds and introduced species may begin to invade.

Blue Grama/Threadleaf Sedge Sod w/ Mid-Grasses Plant Community

This plant community typically develops, over a period of several years, under frequent and severe defoliation during the growing season of the cool-season mid-grasses. It typically is made up of sod forming grasses with only remnants of cool-season mid-grasses remaining. The dominant grasses are blue grama and threadleaf sedge. Needleandthread and western wheatgrass are reduced. Sideoats grama and little bluestem are nearly absent. Other grasses present include Sandberg bluegrass and prairie junegrass. Significant forbs include scarlet globemallow, slim-flowered scurfpea, and skeletonplant.

Compared to the Historic Climax Plant Community, blue grama and threadleaf sedge have increased. Sideoats grama, little bluestem, and western wheatgrass have decreased. Palatable forbs and half-shrubs such as dotted gayfeather, penstemon, American vetch, and winterfat have decreased. Fringed sagewort and broom snakeweed are increasing. Plant diversity is moderate.

In the 12 to 14 inch precipitation zone, the total annual production (air-dry weight) is about 750 pounds per acre during an average year, but it can range from about 500 pounds per acre in unfavorable years to about 1,000 pounds per acre in above average years.

In the 15 to 17 inch precipitation zone, the total annual production (air-dry weight) is about 950 pounds per acre during an average year, but it can range from about 600 pounds per acre in unfavorable years to about 1,300 pounds per acre in above average years.

The following is the growth curve of this plant community expected during an average year:
Growth Curve Number:
Growth Curve Name:
Growth Curve Description:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	1	9	20	35	20	10	5	0	0	0

(monthly percentages of total annual growth)

This plant community is stable and can become very resistant to change depending on the degree to which the sod has formed. Changes in grazing management may take a long time to affect the plant composition.

Soil erosion is low. Infiltration is reduced, and overland flow is increased because of the sod-bound condition. This explains the lowered production and the off-site gully erosion that often occurs.

Transitions or pathways leading to other plant communities are as follows:

- Prescribed grazing will move this plant community towards the *Blue Grama, Needleandthread, Sideoats Grama Plant Community (HCPC).* This may take many years depending on the degree to which the sod is formed and the amount of cool-season mid-grasses and palatable forbs remaining.

- Continued frequent/severe defoliation, throughout the growing season of the cool-season mid-grasses, will move this plant community towards the *Blue Grama/Threadleaf Sedge Sod w/out Mid-Grasses Plant Community.*

Low Plant Density, Excess Litter Plant Community

This plant community developed under the absence of grazing and fire. At first, excessive litter builds up shading out some plants. Other plants become decadent with low vigor. Bunch grasses often develop dead centers. Eventually, the interspaces between plants increase in size leaving more soil surface exposed. Organic matter oxidizes in the air rather than being incorporated into the soil. The dominant plants tend to be somewhat similar to those found in the Historic Climax Plant Community. Weedy species, cool-season grasses, and sedges have increased. Blue grama has decreased. Rodent activity has resulted in an increase in soil disturbance. Annual bromes tend to invade the community. Cactus and sageworts may increase. Plant diversity is moderate to high.

In the 12 to 14 inch precipitation zone, the total annual production (air-dry weight) is about 800 pounds per acre during an average year, but it can range from about 550 pounds per acre in unfavorable years to about 1,050 pounds per acre in above average years.

In the 15 to 17 inch precipitation zone, the total annual production (air-dry weight) is about 1,000 pounds per acre during an average year, but it can range from about 650 pounds per acre in unfavorable years to about 1,350 pounds per acre in above average years.

The following is the growth curve of this plant community expected during an average year:
Growth Curve Number:
Growth Curve Name:
Growth Curve Description:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	0	10	30	40	5	5	10	0	0	0

(monthly percentages of total annual growth)

This plant community is not resistant to change. The introduction of grazing or fire quickly changes the plant community. It is somewhat more vulnerable to severe disturbance than the HCPC. Soil erosion is accelerated because of increased bare ground. Water flow patterns and pedestalling are obvious. Infiltration is reduced and runoff is increased.

Transitions or pathways leading to other plant communities are as follows:

- Prescribed grazing and/or fire will move this plant community towards the *Blue Grama, Needleandthread, Sideoats Grama Plant Community (HCPC).* This can occur relatively fast.

Blue Grama/Threadleaf Sedge Sod w/o Mid-Grasses Plant Community

This plant community develops under long-term frequent and severe grazing. It is a dense sod, made up of short grasses and grass-likes. The mid-grasses have been eliminated. The dominant grass is blue grama. Other grasses and grass-likes include threadleaf sedge, and threeawns. The palatable forbs have been eliminated with only species such as scarlet globemallow, slim-flowered scurfpea, and skeletonplant remaining.

Compared to the Historic Climax Plant Community, blue grama, threadleaf sedge, threeawns, fringed sagewort, and broom snakeweed have increased. Needleandthread, western wheatgrass, sideoats grama, little bluestem, winterfat, and palatable perennial forbs have virtually been eliminated. Plant diversity is very low.

In the 12 to 14 inch precipitation zone, the total annual production (air-dry weight) is about 500 pounds per acre during an average year, but it can range from about 350 pounds per acre in unfavorable years to about 650 pounds per acre in above average years.

In the 15 to 17 inch precipitation zone, the total annual production (air-dry weight) is about 650 pounds per acre during an average year, but it can range from about 450 pounds per acre in unfavorable years to about 850 pounds per acre in above average years.

The following is the growth curve of this plant community expected during an average year:
Growth Curve Number:
Growth Curve Name:
Growth Curve Description:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	0	5	20	30	30	10	5	0	0	0

(monthly percentages of total annual growth)

Even with the best range management, this plant community is extremely resistant to change. This is because of the sod-bound condition and the fact that many of the plant species have been removed from the plant community. Oftentimes, a seed source is not readily available. Also, much of the precipitation is lost to runoff and is unavailable to the plants. While soil erosion is low, infiltration has been greatly decreased. Increased runoff typically causes off-site gully erosion.

Transitions or pathways leading to other plant communities are as follows:

- Continued, frequent and severe defoliation + trampling can eventually move this plant community to *the Bare Ground, Blue grama, Invaders Plant Community*.

- Very long-term prescribed grazing may move this plant community towards the *Blue Grama/Threadleaf Sedge Sod with Mid-grasses Plant Community.* Without a seed source available this could take generations. Range or pasture planting may be the only option to return this community to a productive condition in a realistic time frame.

Bare Ground, Blue Grama, Invaders Plant Community

This plant community occurs where the rangeland is grazed year-round, at high stock densities, such as in a feeding situation or a prairie dog town. Physical impact such as trampling, soil compaction, and trailing typically contribute to this transition. The plant composition is made up annuals with a few species of perennial forbs and grasses that are very tolerant to frequent and severe defoliation. The dominant grasses and grass-likes include blue grama, threadleaf sedge, and threeawns. Annual grasses such as annual bromes and sixweeks fescue have increased. The dominant perennial forbs include green sagewort, curlycup gumweed and hairy goldaster. Broom snakeweed is increasing.

Compared to the Historic Climax Plant Community, all perennial plants have been greatly reduced with only remnants of the most grazing tolerant species present. Plant diversity is very low if annuals and weedy species are not considered.

In the 12 to 14 inch precipitation zone, the total annual production (air-dry weight) is about 500 pounds per acre during an average year, but it can range from about 300 pounds per acre in unfavorable years to about 700 pounds per acre in above average years.

In the 15 to 17 inch precipitation zone, the total annual production (air-dry weight) is about 650 pounds per acre during an average year, but it can range from about 400 pounds per acre in unfavorable years to about 900 pounds per acre in above average years.

The following is the growth curve of this plant community expected during an average year:
Growth Curve Number:
Growth Curve Name:
Growth Curve Description:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	0	5	20	35	25	10	5	0	0	0

(monthly percentages of total annual growth)

This plant community is resistant to positive change because of the lack of perennial species present and the amount of annuals and invaders occupying the community. Planned rest periods during the growing season will improve the vigor of the plant species present and eventually reduce the amount of bare ground.

Soil erosion is very high compared to other potential plant communities because of the amount of bare ground. Soil erosion can alter the communities ability to ever recover to a level equal to it's original potential. Infiltration is very low and runoff is high because of a lack of litter and living plants. Mineral crusting magnifies the situation making much of the precipitation unavailable to the plants.

Transitions or pathways leading to other plant communities are as follows:

- Very long-term prescribed grazing will move this plant community back towards *the Blue Grama/Threadleaf Sedge Sod w/o Mid-grasses Plant Community*. The rate of this transition can be extremely variable and lengthy depending on the species present and the availability of a seed source. Range or pasture planting may be the only option to return this community to a productive condition in a realistic time frame.

Go-back Land

This plant community developed where cropland was abandoned, 20 to 50 years ago, with either no reseeding or reseeding that was only marginally successful. This plant community is highly variable depending on level of soil disturbance, amount of erosion that has taken place, and past grazing management. The composition can include some remnant tame pasture grasses and a variety of pioneer perennial species. The dominant grasses include threeawn, sand dropseed, Sandberg bluegrass, annual bromes, and sixweeks fescue. Other grasses may include crested wheatgrass, little bluestem, western wheatgrass, and needleandthread. Blue grama is typically absent. Forbs can include western sticktight, western ragweed, and sweetclover. Significant shrubs in this community include broom snakeweed and green rabbitbrush. Pricklypear cactus is typically absent. Plant diversity is low and production is highly variable.

In the 12 to 14 inch precipitation zone, the total annual production (air-dry weight) is about 500 pounds per acre during an average year, but it can range from about 350 pounds per acre in unfavorable years to about 650 pounds per acre in above average years.

In the 15 to 17 inch precipitation zone, the total annual production (air-dry weight) is about 650 pounds per acre during an average year, but it can range from about 450 pounds per acre in unfavorable years to about 850 pounds per acre in above average years.

The following is the growth curve of this plant community expected during an average year:
Growth Curve Number:
Growth Curve Name:
Growth Curve Description:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	0	5	20	40	25	10	5	0	0	0

(monthly percentages of total annual growth)

This plant community is not resistant to change and can deteriorate rapidly because of low plant diversity. Once disturbed, it will not recover rapidly. Soil erosion is moderate. While highly variable, infiltration is reduced, and runoff is increased. Range or pasture planting is typically the only option to return this community to a productive condition in a realistic time frame.

Ecological Site Interpretations

Animal Community – Wildlife Interpretations

Blue Grama, Needleandthread, Sideoats Grama Community (HCPC): The predominance of grasses plus high forb diversity in this community favors large grazers such as pronghorn and elk. Suitable thermal and escape cover for mule deer is limited due to low shrub cover. White-tailed and black-tailed jackrabbit, badger, and coyote commonly use this community. This community also provides habitat for a wide array of smaller mammals, so diverse prey populations are available for raptors such as ferruginous and Swainson's hawks. Birds such as western kingbird, western meadowlark, lark bunting, and grasshopper sparrow will utilize this community for nesting and foraging. This community is especially favorable for ground-nesting birds because of the abundant residual vegetation available in the spring for nesting, escape and thermal cover.

Blue Grama/Threadleaf Sedge Sod w/ Mid-grasses Community: The reduction in taller grasses in this community results in decreased use by lark buntings and western meadowlarks. Use by long-billed curlew increases, provided there is standing water within ¼ mile. Killdeer, horned larks, and McCown's longspurs will also make significant use of this community. Pronghorn may forage in this community.

Blue Grama/Threadleaf Sedge Sod w/o Mid-grasses Community: This community provides limited foraging for antelope and other grazers. Ground-nesting birds favoring sparse vegetation may use this community. Long-billed curlews will use this community if standing water is present within ¼ mile. Generally, this is not a target vegetative community for wildlife habitat management.

Bare Ground, Blue Grama, Invaders Community: Sparse vegetation and greater amounts of bare ground provide suitable habitat for prairie dogs, horned larks and McCown's longspurs. However, a lack of complex vegetation structure and residual cover makes this community poor habitat in general for most ground-nesting birds and big game species. Burrowing owl may occur here if the community is occupied by prairie dogs. Pronghorn may find limited forage in this community.

Low Plant Density, Excess Litter Community: This community has low habitat value for most wildlife species. Horned larks may nest in this community. Prairie dogs and jackrabbits are frequent users of this community.

Go-back Land: The abundance and diversity of seed-producing annuals provides food for a variety of resident and migratory birds. Ring-necked pheasants and sharp-tailed grouse may benefit from this food source if the community is located relatively close to winter cover and cropland. McCown's longspurs and horned larks may nest in this type.

Animal Preferences (Quarterly - 1,2,3,4) for commonly occuring plants in MLRA 67 North

Common Name	Scientific Name	Symbol	Cattle	Sheep	Horses	Antelope	Deer	Elk
GRASSES/GRASSLIKES								
alkali bluegrass	Poa juncifolia	POJU	UDUD	NDNU	UDUD	UDUU	UDUU	DPDD
alkali cordgrass	Spartina gracilis	SPGR	UDPU	UPDU	UPDU	UUDU	UUDU	UDPU
alkali muhly	Muhlenbergia asperifolia	MUAS	UUDU	UUDU	UUDU	UUDU	UUDU	UUDU
alkali sacaton	Sporobolus airoides	SPAI	UDPU	UPDU	UPDU	UUDU	UUDU	UDPU
Baltic rush	Juncus balticus	JUBA	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
basin wildrye	Leymus cinereus	LECI4	DPDD	UPDU	DPDD	UDUU	UDUU	DPDD
big bluestem	Andropogon gerardii	ANGE	UDPD	UDDU	UDPD	UUDU	UUDU	UDPD
blowout grass	Redfieldia flexuosa	REFL	UUDU	UUDU	UUDU	UUDU	UUDU	UUDU
blue grama	Bouteloua gracilis	BOGR2	UDPU	UDPU	UDPU	UUDU	UUDU	UUDU
bluebunch wheatgrass	Pseudoroegneria spicata	PSSP6	DPDD	UPDD	DPDD	UDUU	UDUU	DPDD
bluegrasses	Poa spp.	POA	UPUU	UPND	UPUU	UPND	UPND	UPUU
bluejoint reedgrass	Calamagrostis canadensis	CACA4	UPDU	UDUU	UPDU	UDUU	UDUU	UPDU
buffalograss	Buchloe dactyloides	BUDA	UDPU	UDPU	UDPU	UUDU	UUDU	UUDU
bulrush	Scirpus spp.	SCIRP	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
Canada wildrye	Elymus canadensis	ELCA4	UDUU	NUNN	UDUU	NUNN	NUNN	UDUU
Fendler's threeawn	Aristida purpurea var. fendleriana	ARPUF	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
foxtail barley	Hordeum jubatum	HOJU	NDNN	NDNN	NDNN	NDNN	NDNN	NDNN
green needlegrass	Nassella viridula	NAVI4	DPPD	UPDU	DPPD	UDUU	UDUU	DPPD
hairy grama	Bouteloua hirsuta	BOHI2	UDPU	UDPU	UDPU	UUDU	UUDU	UUDU
Indian ricegrass	Achnatherum hymenoides	ACHY	DPPD	UPDU	DPPD	UDUU	UDUU	DPPD
Indiangrass	Sorghastrum nutans	SONU2	UDPD	UDDU	UDPD	UUDU	UUDU	UDPD
inland saltgrass	Distichlis spicata	DISP	NUUN	NUUN	NUUN	NUUN	NUUN	NUUN
little bluestem	Schizachyrium scoparium	SCSC	UDPU	UPDU	UPDU	UUDU	UUDU	UDPU
muhly	Muhlenbergia spp.	MUHLE	UUDU	UUDU	UUDU	UUDU	UUDU	UUDU
Nebraska sedge	Carex nebrascensis	CANE2	UDUD	UPND	UDUD	UPND	UPND	UDUD
needleandthread	Hesperostipa comata ssp. comata	HECOC8	DPDD	UPDU	DPDD	UDUU	UDUU	DPDD
northern reedgrass	Calamagrostis stricta ssp. inexpansa	CASTI3	UPDU	UDUU	UPDU	UDUU	UDUU	UPDU
Nuttall's alkaligrass	Puccinellia nuttalliana	PUNU2	DPUD	NPND	DPUD	UDUU	UDUU	DPPD
panicgrass	Dichanthelium wilcoxianum	DIWI5	UUDU	NUNN	UUDU	NUNN	NUNN	UUDU
plains bluegrass	Poa arida	POAR3	NPUN	NPUN	NPUN	NDUN	NDUN	NPUN
plains muhly	Muhlenbergia cuspidata	MUCU3	UUDU	UUDU	UUDU	UUDU	UUDU	UUDU
plains reedgrass	Calamagrostis montanensis	CAMO	UPDU	UDUU	UPDU	UDUU	UDUU	UPDU
prairie cordgrass	Spartina pectinata	SPPE	UDPD	UDDU	UDPD	UUDU	UUDU	UDPD
prairie junegrass	Koeleria macrantha	KOMA	UDUU	NDNU	UDUU	UDUU	UDUU	UDUU
prairie sandreed	Calamovilfa longifolia	CALO	UDPU	UDUU	UDDU	UUDU	UUDU	UUDU
reed canarygrass	Phalaris arundinacea	PHAR3	UDUU	NUNN	UDUU	NUNN	NUNN	UDUU
rushes	Juncus spp.	JUNCU	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
sand bluestem	Andropogon hallii	ANHA	UDPD	UDDU	UDPD	UUDU	UUDU	UDPD
sand dropseed	Sporobolus cryptandrus	SPCR	NUUN	NUUN	NUUN	NUUN	NUUN	NUUN
sand lovegrass	Eragrostis trichodes	ERTR3	UDPU	UUDU	UDDU	UUDU	UUDU	UDDU
sand paspalum	Paspalum setaceum	PASE5	NUUN	NUUN	NUUN	NUUN	NUUN	NUUN
Sandberg bluegrass	Poa secunda	POSE	NPUN	NPUN	NPUN	NDUN	NDUN	NPUN
sandhill muhly	Muhlenbergia pungens	MUPU2	UUDU	UUDU	UUDU	UUDU	UUDU	UUDU
sedge	Carex spp.	CAREX	UDUD	UPND	UDUD	UPND	UPND	UDUD
sideoats grama	Bouteloua curtipendula	BOCU	UDPU	UPDU	UPDU	UUDU	UUDU	UUDU
slender wheatgrass	Elymus trachycaulus ssp. trachycaulus	ELTRT	DPDD	UPDD	DPDD	UDUU	UDUU	DPDD
spikerush	Eleocharis spp.	ELEOC	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU
switchgrass	Panicum virgatum	PAVI2	UDPD	UDDU	UDPD	UUDU	UUDU	UDPD
thickspike wheatgrass	Elymus lanceolatus ssp. lanceolatus	ELLAL	DPDD	UPDD	DPDD	UDUU	UDUU	DPDD
threadleaf sedge	Carex filifolia	CAFI	UDUD	UPND	UDUD	UPND	UPND	UDUD
threeawn	Aristida spp.	ARIST	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
western wheatgrass	Pascopyrum smithii	PASM	DPDD	UPDD	DPDD	UDUU	UDUU	DPDD
FORBS								
American licorice	Glycyrrhiza lepidota	GLLE3	NNNN	NUUN	NNNN	NUUN	NUUN	NUUN
American vetch	Vicia americana	VIAM	UPPU	UPPU	UPPU	UPPU	UPPU	UPPU
arrowgrass	Triglochin spp.	TRIGL	TTTT	TTTT	TTTT	TTTT	TTTT	TTTT
aster	Aster spp.	ASTER	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
biscuitroot	Lomatium spp.	LOMAT	UDUU	UDDU	UDUU	UDDU	UDDU	UDDU
blue-eyed grass	Sisyrinchium spp.	SISYR	UUDU	UUPU	UUDU	UUDU	UUDU	UUDU
breadroot	Pediomelum spp.	PEDIO2	NUUN	UDUU	NUUN	UDUU	UDUU	UDUU
broadleaf cattail	Typha latifolia	TYLA	UUDU	UUUU	UUDU	UUUU	UUDU	UUDU
buckwheat	Eriogonum spp.	ERIOG	NNNN	UUUU	NNNN	UUUU	UUUU	UUUU
bush morningglory	Ipomoea leptophylla	IPLE	UUUU	UUUU	NNNN	UUUU	UUUU	UUUU
cinquefoil	Potentilla spp.	POTEN	NNNN	UUUU	NNNN	UUUU	UUUU	UUUU
cudweed sagewort	Artemisia ludoviciana	ARLU	UUUU	UUDU	UUUU	UUDU	UUDU	UUDU
curlycup gumweed	Grindelia squarrosa	GRSQ	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
deathcamas	Zigadenus venenosus	ZIVE	TTTT	TTTT	TTTT	TTTT	TTTT	TTTT
dotted gayfeather	Liatris punctata	LIPU	UPPU	UPPU	UPPU	UPPU	UPPU	UPPU
evening primroses	Oenothera spp.	OENOT	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
false boneset	Brickellia eupatorioides	BREU	NDUN	NDUN	NNNN	NDUN	NDUN	NDUN
fringed sagewort	Artemisia frigida	ARFR4	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU
goldenrod	Solidago spp.	SOLID	NUNN	NUNN	NNNN	NUNN	NUNN	NUNN

Animal Preferences (Quarterly - 1,2,3,4) for commonly occuring plants in MLRA 67 North

green sagewort	Artemisia campestris	ARCA12	NNNN	NUUN	NNNN	NUUN	NUUN	NNNN
greenthread	Thelesperma spp.	THELE	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
groundsel	Senecio spp.	SENEC	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
hairy goldaster	Heterotheca villosa	HEVI4	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
heath aster	Symphyotrichum ericoides	SYER	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
iris	Iris spp.	IRIS	NUUN	NUUN	NNNN	NUUN	NUUN	NUUN
ironweed	Vernonia spp.	VERNO	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
Lambert crazyweed	Oxytropis lambertii	OXLA3	TTTT	TTTT	TTTT	TTTT	TTTT	TTTT
larkspur	Delphinium spp.	DELPH	TTTT	TTTT	TTTT	TTTT	TTTT	TTTT
lemon scurfpea	Psoralidium lanceolatum	PSLA3	NNNN	NUUN	NNNN	NUUN	NUUN	NUUN
Maximilian sunflower	Helianthus maximiliani	HEMA2	UDPU	UDPU	UDPU	UDPU	UDPU	UDPU
milkvetch	Astragalus spp.	ASTRA	UDUU	UDUU	UDUU	UDUU	UDUU	UDUU
nailwort	Paronychia spp.	PARON	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
Pennsylvania smartweed	Polygonum pensylvanicum	POPE2	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
penstemons	Penstemon spp.	PENST	UPPU	UPPU	UPPU	UPPU	UPPU	UPPU
perennial sunflowers	Helianthus spp.	HELIA3	UPPU	UPPU	UPPU	UPPU	UPPU	UPPU
phlox	Phlox spp.	PHLOX	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
poison hemlock	Conium maculatum	COMA2	TTTT	TTTT	TTTT	TTTT	TTTT	TTTT
prairie clovers	Dalea spp.	DALEA	UPPU	UPPU	UPPU	UPPU	UPPU	UPPU
prairie coneflower	Ratibida columnifera	RACO3	UPPU	UPPU	UPPU	UPPU	UPPU	UPPU
purple prairie clover	Dalea purpurea	DAPU5	UPPU	UPPU	UPPU	UPPU	UPPU	UPPU
Pursh seepweed	Suaeda calceoliformis	SUCA2	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
pussytoes	Antennaria spp.	ANTEN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
rush skeletonplant	Lygodesmia juncea	LYJU	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
sandwort	Arenaria spp.	ARENA	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
scarlet gaura	Gaura coccinea	GACO5	NNNN	NUUN	NNNN	NUUN	NUUN	NNNN
scarlet globemallow	Sphaeralcea coccinea	SPCO	UUDU	UDDU	UUDU	UPPU	UDDD	UDDD
scurfpea	Psoralidium spp.	PSORA2	NNNN	NUUN	NNNN	NUUN	NUUN	NUUN
showy peavine	Lathyrus polymorphus	LAPO2	UPPU	UPPU	UPPU	UPPU	UPPU	UPPU
silky prairie clover	Dalea villosa	DAVI	UPPU	UPPU	UPPU	UPPU	UPPU	UPPU
slimflower scurfpea	Psoralidium tenuiflorum	PSTE5	NNNN	NUUN	NNNN	NUUN	NUUN	NUUN
spiderworts	Tradescantia spp.	TRADE	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
stiff sunflower	Helianthus pauciflorus	HEPA19	UDPU	UDPU	UDPU	UDPU	UDPU	UDPU
swamp smartweed	Polygonum hydropiperoides	POHY2	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
tenpetal blazingstar	Mentzelia decapetala	MEDE2	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
veiny dock	Rumex venosus	RUVE2	NNNN	NUUN	NNNN	NUUN	NUUN	NUUN
water hemlock	Cicuta spp.	CICUT	TTTT	TTTT	TTTT	TTTT	TTTT	TTTT
western ragweed	Ambrosia psilostachya	AMPS	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
western yarrow	Achillea millefolium	ACMI2	NUUN	NUUN	NNNN	NUUN	NUUN	NUUN
white prairie clover	Dalea candida	DACA7	UPPU	UPPU	UPPU	UPPU	UPPU	UPPU
whiteflower gilia	Ipomopsis longiflora ssp. longiflora	IPLOL	NUUN	NUUN	NNNN	NUUN	NUUN	NUUN
wild onion	Allium textile	ALTE	UDUU	UDUU	UDUU	UDUU	UDUU	UDUU
wild strawberry	Fragaria virginiana	FRVI	NNNN	NUUN	NNNN	NUUN	NUUN	NUUN
woollywhite hymenopappus	Hymenopappus tenuifolius	HYTE2	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
TREES, SHRUBS, AND HALF-SHRUBS								
antelope bitterbrush	Purshia tridentata	PUTR2	PDDD	PDDD	DDUD	PDDP	PDPP	PDDP
Arkansas rose	Rosa arkansana	ROAR3	UDDU	UDDU	NUUN	UDDU	UDDU	UDDU
big sagebrush	Artemisia tridentata	ARTR2	UNUU	DUUD	UNNU	PPPP	PUDP	DUUU
boxelder	Acer negundo	ACNE2	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU
brittle cactus	Opuntia fragilis	OPFR	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
broom snakeweed	Gutierrezia sarothrae	GUSA2	NNNN	UUUU	NNNN	UUUU	UUUU	UUUU
fourwing saltbush	Atriplex canescens	ATCA2	PDDP	PDDP	PDDP	PDDP	PDDP	PDDP
Gardner's saltbush	Atriplex gardneri	ATGA	PDDP	PDDP	DUUD	PDDP	PDDP	PDDP
greasewood (Toxic in large amounts)	Sarcobatus vermiculatus	SAVE4	DUUD	DUUD	DUUD	DUUD	DUUD	DUUD
green ash	Fraxinus pennsylvanica	FRPE	UUUU	UUUU	UUUU	UDDU	UDDU	UUUU
green rabbitbrush	Chrysothamnus viscidiflorus	CHVI8	DUUD	DUUD	UNNU	PUDD	PUDD	DUUD
leadplant	Amorpha canescens	AMCA6	UPDU	UPDU	UDDU	UPDU	UPDU	UPDU
plains cottonwood	Populus deltoides ssp. monilifera	PODEM	DUDD	DUDD	DUDD	DUDD	DUDD	DUDD
plains pricklypear	Opuntia polyacantha	OPPO	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
ponderosa pine	Pinus ponderosa var. scopulorum	PIPOS	UTTU	UNNU	UNNU	UNNU	UNNU	UNNU
Rocky Mountain juniper	Juniperus scopulorum	JUSC2	UNNU	UNNU	UNNU	UNNU	DUUD	UNNU
rose	Rosa spp.	ROSA5	UDDU	UDDU	NUUN	UDDU	UDDU	UDDU
rubber rabbitbrush	Ericameria nauseosa	ERNA10	UUUU	DUUD	UUUU	UDDU	DUUD	DUUU
sand sagebrush	Artemisia filifolia	ARFI2	UNNU	UNNU	UNNU	UNNU	UNNU	UNNU
silver buffaloberry	Shepherdia argentea	SHAR	DUUU	DUUU	UUUU	UUUU	PUDP	DUUU
silver sagebrush	Artemisia cana	ARCA13	DUUD	DUUD	UNNU	PPPP	PDDP	DUUD
skunkbush sumac	Rhus trilobata	RHTR	DUUD	DUUD	UUUU	DUUD	DUUD	DUUD
spreading buckwheat	Eriogonum effusum	EREF	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU
true mountainmahogany	Cercocarpus montanus	CEMO2	DDDD	PDDD	DDDD	UNNU	PDDP	PDDD
western sandcherry	Prunus pumila var. besseyi	PRPUB	DUUD	DUUD	DUUD	DUUD	PUDP	PUUP
western snowberry	Symphoricarpos occidentalis	SYOC	UUUU	UUUU	UUUU	UUUU	DUDD	DUUU
willows	Salix spp.	SALIX	PUDP	PUDP	DUUD	UUUU	PUDP	PUDP
winterfat	Krascheninnikovia lanata	KRLA2	PPPP	PPPP	PPPP	PPPP	PPPP	PPPP
yucca	Yucca glauca	YUGL	DUUD	DUUD	UUUU	DUUD	DUUD	DUUD

Animal Community – Grazing Interpretations

The following tables list suggested initial stocking rates for cattle under continuous grazing (year long grazing or growing season long grazing) under normal growing conditions; however, *continuous grazing is not typically recommended.* These are conservative estimates that should be used only as guidelines in the initial stages of the conservation planning process. Often, the current plant composition does not entirely match any particular plant community as described in this ecological site description. Because of this, a field visit is recommended, in all cases, to document plant composition and production. More precise carrying capacity estimates should eventually be calculated using the following stocking rate information along with animal preference data, particularly when grazers other than cattle are involved. Under more intensive grazing management, improved harvest efficiencies can result in an increased carrying capacity.

Plant Community 12-14" Precipitation	**Production (lbs./acre)**	**Carrying Capacity (AUM/acre)**
Blue Grama, Needleandthread, Sideoats Grama (HCPC)	1000	0.30
Blue Grama/Threadleaf Sedge Sod w/ Mid-Grasses	750	0.25
Blue Grama/Threadleaf Sedge Sod w/o Mid-Grasses	500	0.15
Bare Ground, Blue Grama, Invaders	500	0.10
Low Plant Density, Excess Litter	800	0.25
Go-back Land (highly variable)	500	0.20

Plant Community 15-17" Precipitation	**Production (lbs./acre)**	**Carrying Capacity (AUM/acre)**
Blue Grama, Needleandthread, Sideoats Grama (HCPC)	1250	0.40
Blue Grama/Threadleaf Sedge Sod w/ Mid-Grasses	950	0.30
Blue Grama/Threadleaf Sedge Sod w/o Mid-Grasses	650	0.20
Bare Ground, Blue Grama, Invaders	650	0.15
Low Plant Density, Excess Litter	1000	0.30
Go-back Land (highly variable)	650	0.25

Grazing by domestic livestock is one of the major income-producing industries in the area. Rangelands in this area provide yearlong forage under prescribed grazing for cattle, sheep, horses and other herbivores. During the dormant period, livestock may need supplementation based on reliable forage analysis.

Hydrology Functions

Water is the principal factor limiting forage production on this site. This site is dominated by soils in hydrologic group B and C, with localized areas in hydrologic group D. Infiltration ranges from moderately slow to moderate. Runoff potential for this site varies from low to moderate depending on soil hydrologic group and ground cover. In many cases, areas with greater than 75% ground cover have the greatest potential for high infiltration and lower runoff. An example of an exception would be where short-grasses form a strong sod and dominate the site. Areas where ground cover is less than 50% have the greatest potential to have reduced infiltration and higher runoff (refer to Part 630, NRCS National Engineering Handbook for detailed hydrology information).

Rills and gullies should not typically be present. Water flow patterns should be barely distinguishable if at all present. Pedestals are only slightly present in association with bunchgrasses. Litter typically

falls in place, and signs of movement are not common. Chemical and physical crusts are rare to non-existent. Cryptogamic crusts are present, but only cover 1-2% of the soil surface.

Recreational Uses
This site provides hunting, hiking, photography, bird watching and other opportunities. The wide varieties of plants that bloom from spring until fall have an esthetic value that appeals to visitors.

Wood Products
No appreciable wood products are present on the site.

Other Products
None noted.

Supporting Information

Associated Sites
(R067AY162WY) – Shallow Loamy 12-17 " P.Z.
(R067AY122WY) – Loamy 12-17" P.Z.

Similar Sites
(R067AY122WY) – Loamy 12-17" P.Z. is more productive
(R067AY162WY) – Shallow Loamy 12-17" P.Z. has more western wheatgrass

Inventory Data References (narrative)
Information presented here has been derived from NRCS clipping data and other inventory data. Field observations from range trained personnel was also used.

Inventory Data References

Data Source	Number of Records	Sample Period	State	County
SCS-RANGE-417	110	1963 -1987	WY	Platte & others

State Correlation
This site has been correlated with Wyoming, Colorado, and Nebraska.

Type Locality

Field Offices
Wyoming: Cheyenne, Douglas, Lusk, Torrington, Wheatland
Nebraska: Bridgeport, Harrisburg, Kimball, Oshkosh, Scottsbluff, Sidney
Colorado: Greeley, Sterling

Relationship to Other Established Classifications

Other References
Other sources used as references include: High Plains Regional Climate Center, USDA NRCS Water and Climate Center, USDA NRCS National Range and Pasture Handbook, and USDA NRCS Soil Surveys from various counties.

Site Description Approval

_____ _____
State Range Management Specialist Date

_____ _____
State Range Management Specialist Date

_____ _____
State Range Management Specialist Date

Ecological Reference Worksheet

Author(s)/participant(s):_____

Contact for lead author: _____ **Reference site used? Yes/No**

Date: __1/05_ ___ **MLRA:** ___67A__ **Ecological Site:** R067AY120WY Limy Upland (LiU)

__ This *must* be verified based on soils and climate (see Ecological Site Description). Current plant community *cannot* be used to identify the ecological site.

Indicators. For each indicator, describe the potential for the site. Where possible, (1) use numbers, (2) include expected range of values for above- and below-average years for **each** community within the reference state, when appropriate & (3) cite data. Continue descriptions on separate sheet.

1. Number and extent of rills: Rills should not be present

2. Presence of water flow patterns: Barely observable

3. Number and height of erosional pedestals or terracettes: Essentially non-existent

4. Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are *not* bare ground): Bare ground is 20-30% occurring in small areas throughout site

5. Number of gullies and erosion associated with gullies: Active gullies should be restricted to areas of concentrated water flow patterns on steeper slopes

6. Extent of wind scoured, blowouts and/or depositional areas: Small scoured sites may be observed

7. Amount of litter movement (describe size and distance expected to travel): Litter movement is little to none based on topography and water flow patterns

8. Soil surface (top few mm) resistance to erosion (stability values are averages – most sites will show a range of values for both plant canopy and interspaces, if different): Plant cover and litter is at 70% or greater of soil surface and maintains soil surface integrity. Soil Stability class is anticipated to be 4 or greater.

9. Soil surface structure and SOM content (include type and strength of structure, and A-horizon color and thickness for both plant canopy and interspaces, if different): Use Soil Series description for depth and color of A-horizon

10. Effect of plant community composition (relative proportion of different functional groups) & spatial distribution on infiltration & runoff: Grass canopy and basal cover should reduce raindrop impact and slow overland flow providing increased time for infiltration to occur. Infiltration is moderate to rapid

11. Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site): No compaction layer or soil surface crusting should be present.

12. Functional/Structural Groups (list in order of descending dominance by above-ground weight using symbols: >>, >, = to indicate much greater than, greater than, and equal to): Mid stature Cool Season Grasses = Mid Stature Warm Season Grasses > Short Grasses/Grasslikes > Forbs > Shrubs

13. Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence): Very Low

14. Average percent litter cover and depth : Average litter cover is 15-25% with depths of 0.25 to 0.5 inches

15. Expected annual production (this is all above-ground production, not just forage production):
12”-14” Precipitation Zone = 1000 lbs/ac 15”-17” Precipitation Zone = 1250 lbs/ac

16. Potential invasive (including noxious) species (native and non-native). List species which characterize degraded states and which, after a threshold is crossed, “can, and often do, continue to increase regardless of the management of the site and may eventually dominate the site”: Threadleaf sedge, Broom Snakeweed, Fringed sagewort, and Species found on Noxious Weed List

17. Perennial plant reproductive capability: All species are capable of reproducing